

**FIG. 1.** Sentrinization and de-sentrinization pathway.

FIG. 2

1 acctagcgactcttccgggtgctgtgaaggcggttccgggttcgcgcggttccgggtttt  
61 gcggtccgccccggcgaaaccccttcgcatggcagcggttccgggttcggaacttgt  
121 atctttgctaaagtcagtgatgtgaaaagacttgaaatggatgatattgctgataggatg  
M D D I A D R M 8  
181 aggatggatgctggagaagtgaacttttagtgaaccacaactccgtattcaaaacccacctc  
R M D A G E V T L V N H N S V F K T H L 28  
241 ctgccacaaacaggttttccagaggaccagcttttcgctttctgaccagcagattttatct  
L P Q T G F P E D Q L S L S D Q Q I L S 48  
301 tccaggcaaggacatttggaccgatcttttacatgttccacaagaagtcagcttataat  
S R Q G H L D R S F T C S T R S A A Y N 68  
361 ccaagctattactcagataatccttctcagacagttttcttggtcaggcgatttaaga  
P S Y Y S D N P S S D S F L G S G D L R 88  
421 acctttggccagagtgcgaatggccaatggagaattctaccccatcgtaagctcatct  
T F G Q S A N G Q W R N S T P S S S S S 108  
481 ttacaaaaatcaagaacagccgaagtctttacctcgaaacccgaaagacctcaagtggga  
L Q K S R N S R S L Y L E T R K T S S G 128  
541 ttatcaaacagttttgcgggaaagtcaaaccatcactgccatgtatctgcatatgaaaaa  
L S N S F A G K S N H H C H V S A Y E K 148  
601 tcttttctattaaacctgttccaagtccatcttgagtggttcagtcgtcgaagtctt  
S F P I K P V P S P S W S G S C R R S L 168  
661 ttgagccccaagaaaactcagaggcgacatgttagtacagcagaagagacagttcaagaa  
L S P K K T Q R R H V S T A E E T V Q E 188  
721 gaagaagagagatttacagacagctgctacagatgggtcacagggaacagtttactata  
E E R E I Y R Q L L Q M V T G K Q F T I 208  
781 gccaaaccaccacacattttctttacacctgtctcgatgtcttagttccagtaaaaaat  
A K P T T H F P L H L S R C L S S S K N 228  
841 actttgaaagactcactgttttaaaatggaaactcttgtgcattcagatcattggctct  
T L K D S L F K N G N S C A S Q I I G S 248  
901 gatacttcacatctggtatctgccagcattttaactaaccaggaacagctgtccacagt  
D T S S S G S A S I L T N Q E Q L S H S 268  
961 gtatatccctatcttcttataccccagatgttgcatgttgatccaaagattctggtact  
V Y S L S S Y T P D V A F G S K D S G T 288  
1021 cttcatcatccccatcatcaccactctgttccacatcagccagataacttagcagcttca  
L H H P H H H S V P H Q P D N L A A S 308  
1081 aatacacaaatctgaaggatcagactctgtgattttactgaaagtgaagattcccagact  
N T Q S E G S D S V I L L K V K D S Q T 328  
1141 ccaactcccagttctacttttccaggcagagctgtggatcaaagaattaactagtgtt  
P T P S S T F F Q A E L W I K E L T S V 348  
1201 tatgattctcagcacgagaagattgcccagatgaagaacagaaggcattggcctta  
Y D S R A R E R L R Q I E E Q K A L A L 368  
1261 cagcttcaaaacagagattgcaggagcggaacattcagtagattcagtagaacta  
Q L Q N Q R L Q E R E H S V H D S V E L 388  
1321 catcttcgtgtacctcttgaaaaggagattcctgttactgttgccaagaaacacaaaaa  
H L R V P L E K E I P V T V V Q E T Q K 408  
1381 aaagttcataaataactgatgtgaagatgaatttccgtgaaattacagaggaaatggag  
K G H K L T D S E D E F P E I T E E M E 428  
1441 aaagaaataaagaatgtatttcgtaatgggaatcaggatgaagttctcagtgaaagcattt  
K E I K N V F R N G N Q D E V L S E A F 448  
1501 cgccctgaccattacacgcaagatatctaaactctaaaccatctgaattggctcaatgat  
R L T I T R K D I Q T L N H L N W L N D 468  
1561 gagatcatcaatttctacatgaatatgctgtgagcgaagtaagagaagggttgcca  
E I I N F Y M N M L M E R S K E K G L P 488  
1621 agtgtgcattgcaatttaataccttttcttactaaattaaaaacggctggttatcaggca  
S V H A F N T F F F T K L K T A G Y Q A 508  
1681 gtgaaacgttggacaagaagtagatgtattttctgttgacattcttttggtgcccatt  
V K R W T K K V D V F S V D I L L V P I 528  
1741 cacctgggagtacactgggtgtctagctgttggtgactttagaagaagaatattacctat  
H L G V H W C L A V V D F R K K N I T Y 548  
1801 tacgactccatgggtgggataaacaatgaagcctgcagaataactcttgcaatacctaaag  
Y D S M G G I N N E A C R I L L Q Y L K 568  
1861 caagaagcatttgacaagaaaaggaaagagtttgacaccaatggctggcagcttttcagc  
Q E S I D K K R K E F D T N G W Q L F S 588  
1921 aagaagaagccagattcctcagcagatgaatggagtgactgtgggatgtttgctgcaaa  
K K S Q I P Q Q M N G S D C G M F A C K 608  
1981 tatgctgactgtattaccaagacagaccaatcaacttcacacagcaacacatgccatac  
Y A D C I T K D R P I N F T Q Q H M P Y 628  
2041 ttccggaagcggtggtctgggagatcctccaccgaaaactcttggaagactgtctcac  
F R K R M V W E I L H R K L L \* 643  
2101 tttagcagaccttgaccatgtgggggaccagctctttgtgtctacagccagagaccttg  
2161 aaacagctgtctccagccctctgctgttgaacacccctgatcctggaccaggccctggc  
2221 gagatgcattcacaagcacatctgcctttcttttgatctcagatactatttttgcaa  
2281 gaaactttggtgctgtgaaaggggtgaggacatccctaagctgaagagagagactgctt  
2341 ttcacttctcagttctgccatcttgttttcaaagggtccagcctcactcagtcocctaa

2401 ttatgggactgagaaaagcttggaaagaatcttggtttcatataaattcttgtttagg  
2461 Ccttactaagaagtaggaaggcatgggcaaaggtagggataaaaaccac

LG990508-1

HsUlp1	MAEDGVRGSPVPSPGPPMEEDGLAWTPKSPLDPDSSLSCSTLPNGFGGQSGPEGERSLAP	60
Ulp1	MSVEVEKHNNTLQYHKKNPYSPFSSISTYRCYPRVLNNPS-ESR	44
SEN1	MDDIADRMMEAGEVTLVNNSVFKTHLL-PQTGFPEQLSLSDQQILSS	49
HsUlp1	PDASILINVCISGDHVAQELFQGSDELQMAEEAERPGEKA-EG-----	102
Ulp1	RSASFSGIYKKRNTSRFNYNDRRLSMEEEMKDGSDRASKAGFTGGIRETLWNSGKYL	104
SEN1	RQGHLDREFTCSTRSAAYNPSYSDNHSSDSFLGSDLRTPGOSANGQWNSSTPSSSSSL	109
HsUlp1	-----	102
Ulp1	WHTFVKNEPRNFD-----GSEVEASGNSDVESRSSGSRSS-----DVYGL-----RENYS	150
SEN1	QKSRNSRSLYLETRKTSSGLSNSFAGKSNHHCHVSAYEKSFPPIKPVSPSWSGSCRRSL	169
HsUlp1	-----	102
Ulp1	SDTRKHKFDTSWALPNKRRRI-SE-----GVGTPSTS-ISSLASQKSNCDSDNSIT	202
SEN1	SPKKTQRRHVSTAEETVQEEEREIYRQLLQMTGKQFTIAKETTHFPLHLRCLSSSKNT	229
HsUlp1	-----	102
Ulp1	FSDRDF-GWKKWKTSAIGSNSENNTSDQKNSYDRRQYGTAFIRKK---KVAQNINNTKL	258
SEN1	LKDSLFGKNGNSCASQILGSDTSSSGSASILTNQEQLSHSVYLSSTYTPDVAFGSKDSGT	289
HsUlp1	-----	102
Ulp1	VSRAQSEEVTYLRQIFNGEYKVPKILKEERERQLKMDMDKEKDTGLKKSIIIDLTETK-IK	317
SEN1	HHPHHHSVPH-----QPDNLAASNTQSEGSDSVILKLV-KDSQITPSTSTFFQALWIK	343
HsUlp1	-----	126
Ulp1	TIL-IENKNRLQTRNENDDDLVFVKEKKISSLERKHKDYLNQKLKFDRLSEFEKDFKR	376
SEN1	ELTSVYDSRARERLSQIEEQKALALQLNQRLQERPHSVHDSVELHL-RVLEKEI----	398
HsUlp1	SLIHISTDEVV-EKLEDIFQOEFSTPSRKGLVLQLIQSYQRMPCNAMVRGFRVAYKEHVL	185
Ulp1	YNEILNERKKIQEDLKKKKEQLAKKKLVPELNEKDDQVOKALASRENTQ-LMNRDNIEI	435
SEN1	-----PVTIVQETQKKGHKLTLSDEFEPEITEEMEKEIKNVFRNGNQDEVLSAFAELTI	452
HsUlp1	TMDLGLTLYGQNLNDQVMMFGDLVMDTVPEK---VEFFNSFFYDKLRITKGYLGVKRM	241
Ulp1	TVREKTLAPRVLNDITIEFEKYYI-----EKSTPNTVAFNSFFYTILSERGYQGVRR	490
SEN1	TRKDIQTNHLNWLNDPIINFYNNMLERSKEKGLPSVHAFNTFFFTKLKTAGYQAVKRR	512
HsUlp1	TK--NVDIENKELLLPIHLEW-EWSLISVDVERRTITYFDSQRTLNRRCPKHIAKHLOA	298
Ulp1	MKRKKTQDKLDKIFTPIINLNQSHVALGIIDLKKKTICVVDLSNGFNAMSFAILLTDLOK	550
SEN1	TK--KVDVESVDILLVPIHLQW-HVCLAVVDPEKKNTIYYDSMGGINNEACRILLQYLKQ	569
Ulp1	EAV-KKDRLDFHQCCKGYFK-MNVARONNSDCGAFLQYCKHLALSOPFSETOODMPKL	356
Ulp1	YVMEESKH---HIGEDFDLIHLDCPOOPNGYDCGIYVCMNTLYGSADAPLDFDYKDAIRM	607
SEN1	ESIDKRRKEFDINGQLFSKKSQIPDOMNGSDCGMEACKVADCITKDRPINEGTOCHMPYF	629
HsUlp1	RRQYKELCKKLTIV	371
Ulp1	RFTLAHLILNDALK	621
SEN1	EKRNVWETLHRKIL	643

FIG. 3

FIG. 4A.

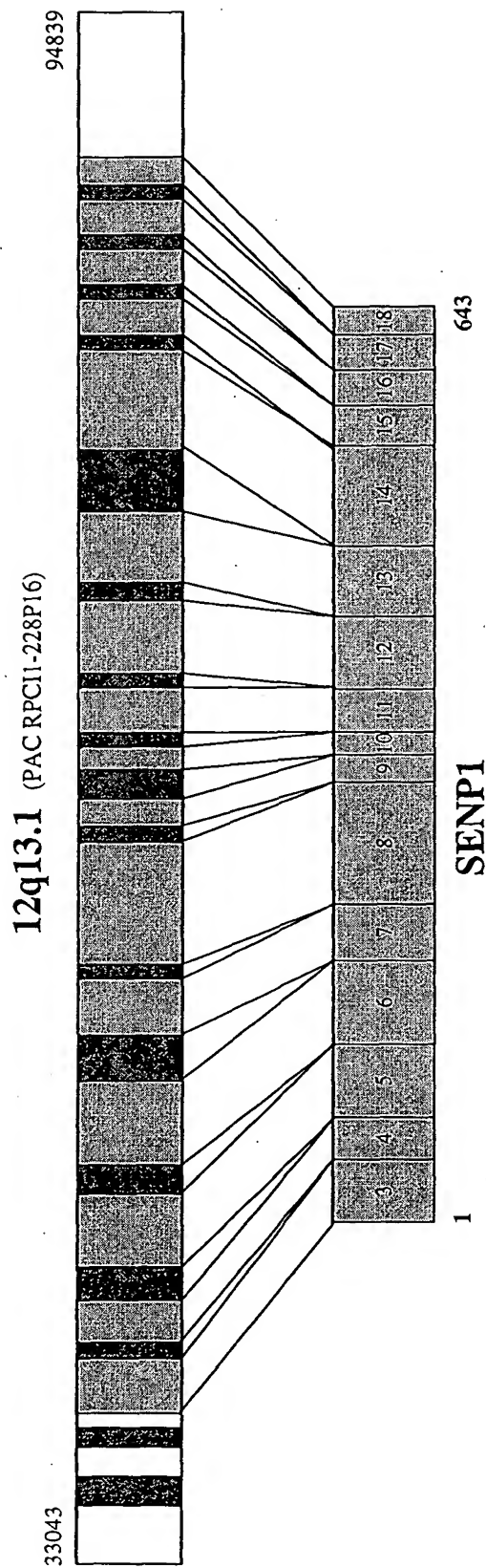
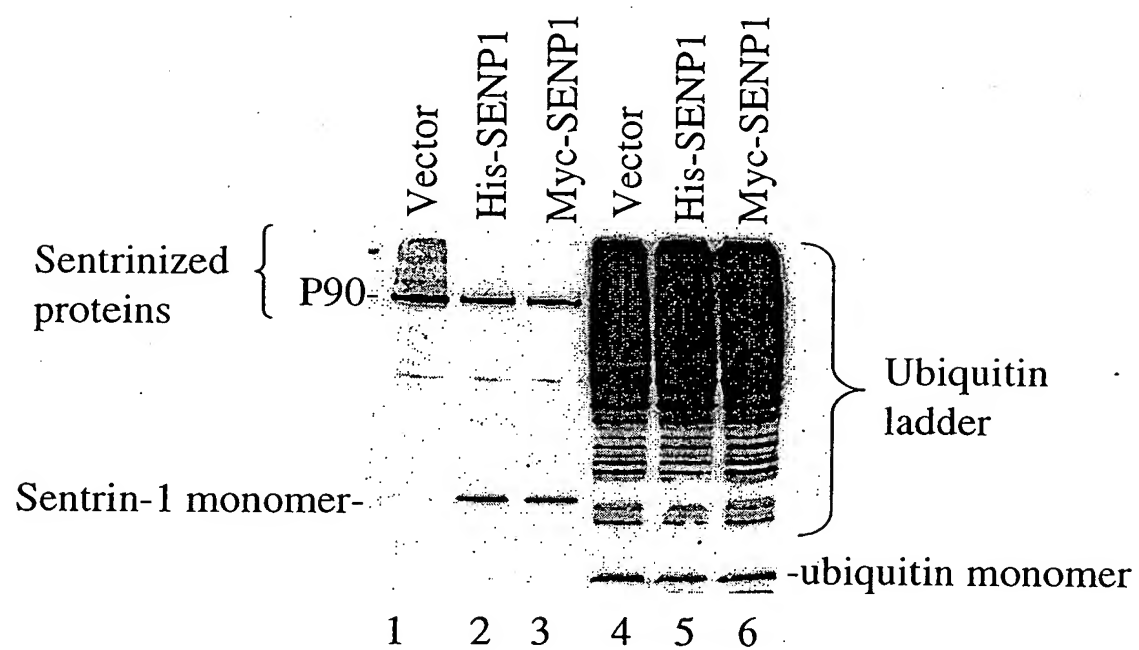


FIG. 4B.

EXON No.	Length (bp)	5'Splice donor	Intron length(kb)	3'Splice acceptor
1	112	GGTTCTG GTGAGT	4.4	TTATAG GACTTT
2	47	AAATGG GTAAGA	3.4	CCCCAG ATGATA
3	132	CAGCAG GTTAGG	1.5	GTTTAG ATTTTA
4	85	ACTCAG GTATGA	7.3	TTTTAG ATAATC
5	160	CTCAAG GTTCGT	5.0	TTTTAG TGGATT
6	172	GAAGAG GTAAGG	8.7	TTATAG ACAGTT
7	104	ACACCT GTGAGT	0.08	TGCTAG GTCTCG
8	284	CTGAAG GTAAC	2.6	TCCTAG GATCAG
9	55	TCCCAG GTAAC	4.7	CCATAG TTCTAC
10	39	AGATT GTAAGT	1.2	TTCTAG AACTAG
11	85	AACAG GTAAC	0.37	TTCTAG AGATTG
12	156	ACAGAG GTAAGT	1.2	CTCAG GAAATG
13	132	GATGAG GTAATG	14.4	CCACAG ATCATC
14	204	AGCTGT GTGAGT	0.84	TCTCAG GTTGTG
15	80	ACTCTT GTAAGT	0.94	CTTTAG GCAATA
16	85	AGCCAG GTACCT	0.53	CAGGAG ATTCTT
17	93	ACACAG GTGAGC	0.97	CTACAG CAACAC
18	487			

**Fig. 5A**



**Fig. 5B**

